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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,471	06/23/2005	Hiroshi Kanai	R0501T	2972
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Yusuke Takeuchi Takeuchi & Takeuchi Suite 202 200 Daingerfield Road Alexandria, VA 22314				
EXAMINER				
STIMPert, PHIL/PEARL				
ART UNIT		PAPER NUMBER		
3746				
MAIL DATE		DELIVERY MODE		
08/06/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,471

Applicant(s)

KANAI ET AL.

Examiner

Philip Stimpert

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: line 3 recites "a suction valve on a cylinder and that draws in a refrigerant." The inclusion of "and" in this recitation is grammatically incorrect, as there is no verb in the preceding clause.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 5 recites "suction ports" on line 7, as well as "a suction port," in line 8. This constitutes two positive recitations of this limitation. The examiner suggests that line 8 should recite "a respective suction port," in accordance with the recitation of "each valve body" to which the suction port relates, and claim 5 will be interpreted in this light for the purpose of this action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. in view of Akahori (US 4,076,047).

7. Regarding claim 1, Kawaguchi et al. teach a variable capacity compressor for use in a refrigerating cycle comprising a swash plate (15) which is disposed rotatably, a piston (22) which is coupled to the swash plate, a cylinder (1a) which holds the piston (22) movably, a suction valve (60a) provided on the cylinder (1a) for sucking a refrigerant of the refrigerating cycle, and a discharge valve (61a) for discharging the refrigerant. Kawaguchi et al. further teach that "[a]s the pistons 22 move backward, the refrigerant gas in the suction chamber 3a forces the suction valves 60a open through the suction[sic] ports 4a and enters the cylinder bores 1a," (col. 5, ln. 44-47), implying that the suction valve has flexible valve bodies attached to suction ports (4a) for sucking the refrigerant. Kawaguchi et al. further teach that each valve body is formed with a curved peripheral portion (shown by a dotted line in Fig. 3, each valve body has a nearly semicircular, or curved, end portion), but do not teach that their valve bodies are press-contacted in an elastically deformed state against the valve seats of the suction ports. Akahori teaches a reed valve for a compressor discharge valve. In particular, Akahori teaches a valve seat (29) which holds a valve in an elastically deformed, flat state by press-contact, and further teaches that the valve would be further elastically deformed when the valve body is in an open state. Akahori indicates that this construction increases sealing in the closed state. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the suction valve of Kawaguchi et al. with a valve seat as taught by Akahori in order to increase sealing in

the closed state. Finally, either the semicircular curve taught by Kawaguchi et al. or the curve (30) taught by Akahori may be considered to curve toward the valve seat, in that the semicircular curve breaks toward the center, and Akahori's curve bulges toward the seat.

8. Regarding claim 2, it would be obvious to one of ordinary skill to resize the compressor of the combination for any number of given applications, including applications calling for a valve body deflection of less than or equal to 1 mm, and experiencing a force of 1.8 N or less based on the desired size or load of the compressor.

9. Regarding claims 3 and 4, Kawaguchi et al. teach that the refrigerating cycle is for use in a car interior. Further, Kawaguchi teach several benefits of a clutchless compressor, such as reduced weight and cost, and avoidance of shocks during activation and inactivation of the clutch (col. 1, ln. 30-52). It would therefore have been obvious to one of ordinary skill in the art to form the compressor of the combination as a clutchless compressor, coupled to the motor vehicle engine without a clutch.

10. Regarding claim 5, Kawaguchi et al. teach a compressor comprising a rotatable swash plate (15), a suction valve (60a) on a cylinder (1a) that draws in a refrigerant in response to motion of a piston (22) in the cylinder, and flexible valve bodies (60a) respectively corresponding to suction ports (4a) of the suction valve, each valve body having a semicircular curved peripheral region (shown in Fig. 3) that curves toward a respective suction port (4a). According to the combination, the modified compressor includes a valve seat (29) as taught by Akahori, against which each valve body (60a) of

Kawaguchi et al. would be press-contacted in an elastically deformed state from a curved state (at 30) to a flat state (against 29). Finally, when open, the valve bodies (60a) of Kawaguchi et al. would be elastically deformed beyond the flat state to a deformed curved state in which the curved peripheral region curves away from the valve seat when the suction valve draws in the refrigerant.

Response to Arguments

11. Applicant's arguments, see page 9, filed 27 March 2008, with respect to the objections to drawings, specification, and claims have been fully considered and are persuasive. The objections to the drawings, specification, and claims 1, 3 and 4 have been withdrawn. Please note that an objection has been made to newly presented claim 5 on informalities grounds.
12. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/P. S./

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31 July 2008